

S/120/62/000/005/005/011
EO73/E535

AUTHORS: Karelin, V.V., Mesmeyanov, An.N., Priselkov, Yu.A. (Moscow)

TITLE: More accurate data on the vapour pressure of metallic yttrium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1962, 117-118

TEXT: In an earlier published paper, the authors studied the vapour pressure of metallic yttrium of a purity of 99.9% (without taking into consideration gaseous admixtures). According to those results, the vapour pressure can be expressed by

$$\lg P_{\text{mm Hg}} = 7.8130 - \frac{15803}{T} \quad (1)$$

This agreed with results obtained for yttrium of 99.5% purity (0.1% Ta, 0.4% O₂). New investigations were carried out with high-purity yttrium containing only traces of metallic admixtures and less than 0.1% gaseous admixtures. The obtained data are tabulated for the temperature range 1132 to 1460°C. According

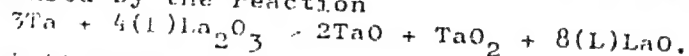
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More accurate data on the vapour ... S/180/62/000/005/005/011
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to these data, applying the method of least squares, the vapour pressure of high-purity metallic yttrium obeys the following relation:

$$\lg P_{\text{mm Hg}} = 8.6786 - \frac{18515}{T} \quad (2)$$

From this, the sublimation heat was determined at 84.71 kcal/g-atom. The divergence between the here obtained and the earlier results is explained by the evaporation of volatile sub-oxides of yttrium, the existence of which was confirmed by means of a resonance mass spectrometer. A similar phenomenon was observed by Goldstein, Walsh and White (On the use of tantalum Knudsen cells in high temperature thermodynamic studies of oxides, J.Phys.Chem., 1960, 64, No.8, p.1087) who proved by means of a mass spectrometer that the increased rate of evaporation of La oxide from tantalum crucibles is caused by the reaction



The relative limit error in measuring the vapour pressure was $\pm 20\%$ for the radioactive and $\pm 24\%$ for the non-radioactive specimens. There is 1 table.

SUBMITTED: Jun 5, 1962
Card 2/2

KARELIN, V.V.; NESMEYANOV, A.N.; PRISELKOV, Yu.A.; CHZHOU KUN'-IN
[Chou K'un-ying]

Measuring the vapor pressure of metallic yttrium. Vest.Mosk.un.
Ser.2: Khim. 17 no.2:40-41 Mr-Ap '62. (MIRA 15:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Yttrium) (Vapor pressure)

MEN'KOV, A.A.; KOMISSAROVA, L.N.; KARELIN, V.V.; PRISELKOV, Yu.A.;
NESMEYANOV, An.N.; SPITSYN, Vikt.I., akademik

Investigation of high-purity metallic scandium. Dokl.AN SSSR
144 no.1:122-125 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Scandium)

KARELIN, V.V. (Moskva); NESMEYANOV, A.M. (Moskva); PRISELKOV, Yu.A. (Moskva)

More precise values of vapor pressure of metallic yttrium. Izv. An
SSSR. Otd. tekhn. nauk. Met. 1 topl. no. 5: 117-118 S-O '62. (MIRA 15:10)
(Yttrium) (Vapor pressure)

KARELIN, V.V.; NESMEYANOV, An.N.; PRISELKOV, Yu.A.

Vapor pressure of metallic scandium. Dokl.AN SSSR 144 no.2:352-
354 My '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom Vikt.I.Spitsynym.
(Scandium) (Vapor pressure)

KARELIN, V.Ya., kand. tekhn. nauk

Pumps with ejectors for lifting water from boreholes. Vol. 1 san.
tekhn. no. 9:35-36 S '64. (MIRA 17:11)

GUBIN, M.F., dots., kand.tekhn.nauk; KARLIN, V.Ya., inzh.

Effect of varying pressure of model turbines on their characteristics. Nauch.dokl.vys.shkoly; stroi. no.2:259-263 ' 58.

(Hydraulic turbines--Models)

(MIRA 12:1)

KARELIN, V. Ya. Cand Tech Sci -- (diss) *Effect of bent suction tubes upon*
the *operation* of propeller and rotary *blade* ~~vanes~~ hydroturbines." Mos, 1958
20 pp; 4 sheets of diagrams (Min of Higher Education USSR. Mos Order of
Labor Red Banner Construction Engineering Inst im V. V. Kuybyshev), 150
copies (KL, 52-53, 102)

-52-

KARELIN, V.Ya., inzh.

The "bypass" sewage pump which does not become obstructed
(from Chicago Pump Company, Bulletin 130, 1959). Vod.i san.tekh.
no.11:35-36 N '62. (MIRA 15:12)
(Pumping machinery) (Sewerage)

S/285/63/000/002/012/012
A052/A126

AUTHOR: Karelin, V.Ya.

TITLE: The effect of hydrodynamic conditions and liquid temperature on the beginning and development of cavitation

PERIODICAL: Referativnyy zhurnal. Otdel'nyy vypusk. 49. Turbostroyeniye, no. 2, 1963, 25, abstract 2.49.134. (Sb. tr. Mosk. inzh. -stroit. in-t, no. 40, 1962, 49 - 55)

TEXT: For the experiments a Venturi flowmeter 4 was used with a cylindrical insert in the oblate section (see the Figure); the flowmeter 4 was installed between the flowmeter 5 and the pumping unit 3-3 supplying water from the water line through the steam-to-water preheater 1 and water heater with a deaerator 2. As the experiments have shown at any time constant water temperature, an increase of pressure in the input of the flowmeter inhibits the beginning of cavitation and increases the maximum flow. At a constant pressure in the input an increase of water temperature accelerates the beginning of cavitation and reduces the maximum flow. 2 different forms of cavitation were observed during the experiments: initial

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The effect of hydrodynamic conditions and ...

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cavitation appeared in the form of a small steady cavern directly at the orifice of the piezometer 7. This form of cavitation is dissimilar from that which is typical for water-measuring devices with a contraction. It had no noticeable effect on the flow characteristic of the flowmeter and its early appearance was explained by a local roughness of the surface caused by sharp edges of the piezometric orifice. With a further increase of the flow or a decrease of the general pressure level in the system an unsteady annular cavern appeared in the flowmeter section near the piezometric orifice 9 which later stabilized and assumed a characteristic form. The moment of appearance of the unsteady annular cavern was considered as the beginning of cavitation in the orifice 9 or in the flowmeter in general. The results of the investigation have shown that 1) at equal values h_{in} characterizing the pressure in the input of the flowmeter and corresponding to the excess pressure in the suction pipe in the case of pumps, the flow values necessary for the beginning of cavitation do not depend on temperature; 2) the development of cavitation in the flowmeter takes an extraordinarily rapid course on account of which the flow value necessary for the beginning of cavitation and the capacity of the flowmeter are close to one another; 3) the pressure at which cavitation appears is not a constant

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The effect of hydrodynamic conditions and ...

value and depends on hydrodynamic conditions in the flow and on the water temperature; 4) the absolute value of the pressure at which cavitation appears is higher than the steam pressure at a corresponding temperature for the case of cold water and approaches the steam pressure as the water temperature increases; 5) the pressure inside the cavitation zone is not constant and depends on hydrodynamic conditions in the flow, on water temperature and on the progress of cavitation. There are six figures and 8 references.

V. Lomilin

[Abstracter's note: Complete translation.]

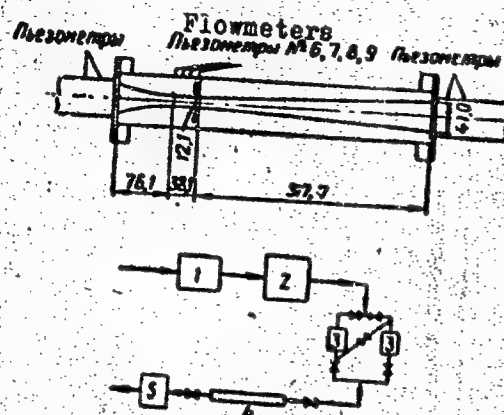
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APPROVED FOR RELEASE

The effect of hydrodynamic conditions and ...

S/285/63/000/002/012/012
A052/A126

Figure:



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L 16726-63

EPA(b)/EWT(1)/EWP(q)/EWT(m)/BDS

AEDC/AFFTC/ASD/AFMDC Pd-4 JD
S/124/63/000/004/013/064

AUTHOR: Karelin, V. Ya.

TITLE: Effect of hydrodynamic conditions and temperature of liquid upon the initiation and development of cavitation 63

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1963, 54, abstract 4B356
(Sb. tr. Mosk. inzh.-stroit. in-t., no. 40, 1962, 49-55)

TEXT: The author has investigated the effect of the hydrodynamic characteristics and temperature of a liquid upon the amount of pressure required for the onset of cavitation; he also measured the pressure within a cavity at varying stages of cavitation. Tests were conducted in a Venturi tube, pressure was measured with piezometers placed on the tube's walls. The dependence (of the critical pressure needed for the onset of cavitation) upon the hydrodynamic conditions and the liquid's temperature is given in the form of curves. For cold water the amount of critical pressure is higher than that of the liquid vapors at a given temperature and approaches the pressure of the vapors as the temperature rises. B. S. Kogarko.

[Abstracter's note: Complete translation.]

Card 1/1

L 46683-66 EWT(1)/EWP(m)

ACC NR: AP6020733

SOURCE CODE: UR/0421/66/000/003/0120/0128

AUTHOR: Vulis, L. A. (Leningrad, Alma-Ata); Karelin, V. Ye. (Leningrad, Alma-Ata);
Ustimenko, B. P. (Leningrad, Alma-Ata)
 ORG: none

TITLE: Propagation of a turbulent gas jet in a co-moving stream

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 3, 1966, 120-128

TOPIC TAGS: axisymmetric flow, gas jet, turbulent jet, flow profile

ABSTRACT: The authors report the results of a detailed experimental investigation carried out in 1962-1964 on the laws governing the propagation of an axisymmetric jet of gas, heated slightly above the temperature of a stationary homogeneous medium, at small Mach numbers $M \ll 1$, at dynamic head ratios $0 \leq m \leq 0.23$, velocity ratios $0 \leq m_1 \leq 0.43$, and density (temperature) ratios $1.2 \leq \omega \leq 4.3$. The experiments were made at different characteristics of compressibility (gas density ratio in the jet and in the surrounding medium) and co-motion (ratio of dynamic heads in jet and surrounding medium). The tests consisted of measuring the dynamic pressure head and the temperature in the entire flow field produced by the jet. The experiments were made in an open wind tunnel of 0.6 m dia. The jet nozzle had a 50 mm dia. The experimental results are compared with calculations based on the method of the equivalent heat-conduction problem, and good agreement is observed. To reconcile some published contradictory opinions regarding the effect of compressibility on the structure of the gas jet, special experiments were set up in which the initial turbulence level

Card 1/2

19537-66 EWT(1)/EWP(m)/EWT(m)/ETC(f)/EPF(n)-2/ENG(m)/EWA(d)/EWA(1) WW/GD/JNL
 ACC NR: AT6006926 JWD/WE/GS SOURCE CODE: UR/0000/65/000/000/0399/0406

AUTHOR: Karelin, V. Ye.; Palatnik, I. B.; Ustimenko, B. P.

ORG: Power Engineering Institute, AN KazSSR (Institut energetiki AN KazSSR)

TITLE: Study of heat and momentum transfer processes in a compressible turbulent jet in a cocurrent uniform flow

SOURCE: Teplo- i massoperenos. t. II: Teplo- i massoperenos pri vzaimodeystvii tel s potokami zhidkostey i gazov (Heat and mass transfer. v. 2: Heat and mass transfer in the interaction of bodies with liquid and gas flows). Minsk, Nauka i tekhnika, 1965, 399-406

TOPIC TAGS: heat transfer, jet, combustion

ABSTRACT: The aerodynamics and heat transfer in nonisothermal, cocurrent jets are important for the intensification of combustion processes. A comprehensive program to study this problem was conducted at the Kazakh Scientific Power Engineering Institute in 1962-1963. The experiments were carried out in a wind tunnel with a test section 0.6 m in diameter. The jet was preheated by passage through a combustion chamber in which butane-propane was burned. The jet was then injected into the test section through a nozzle 0.05 m in diameter. The velocity of the cocurrent air stream in the test section was varied between 10 and 20 m/sec to obtain ratios of the

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L 39537-66

ACC NR: AT6006926

cocurrent stream to jet velocity of 0—0.482. Dynamic pressure, static pressure, and temperature profiles were measured by means of a special probe. The data were correlated in terms of excess momentum and heat capacity. Comparison with theoretically calculated relationships showed that similar problems in the theory of heat conduction can be used for calculating jets of finite dimensions flowing in cocurrent streams. Orig. art. has: 4 figures.

SUB CODE: 21 / SUBM DATE: 09Nov65/ ORIG REF: 008/ OTH REF: 004/ ATD PRESS: 4208 [PV]

Card 2/2 vmb

VULIS, L. A. (Leningrad); KARELIN, V. Ye.; PALATNIK, I. B.; SAKIPOV, Z.;
USTIMENKO, B. P. (Alma-Ata)

"Laws of propagation of turbulent compressible gas jets"
report presented at the 2nd All-Union Congress on Theoretical and Applied
Mechanics, Moscow, 29 Jan - 5 Feb 1964.

L 19357-66

EWP(m)/EWT(1)/EWA(d)/EWA(1)

ACCESSION NR: AT5011660

AUTHOR: Karelin, V. Ye.

UR/3149/64/000/001/0006/0017

TITLE: Application of the method of the equivalent problem in heat conduction theory to the calculation of a nonisothermal axially symmetric turbulent jet within an associated stream

SOURCE: Alma-Ata. Kazakhskiy nauchno-issledovatel'skiy institut energetiki. Problemy teploenergetiki i prikladnoy teplofiziki, no. 1, 1964, Prikladnaya teplofizika, 6-17

TOPIC TAGS: axially symmetric current, aerodynamics, nonisothermal turbulent jet, current parameter comparison, equivalent heat conduction problem, thermal conductivity, associated stream

ABSTRACT: Increased interest is being displayed in the laws of motion and turbulent transfer for nonisothermal jets generated within an associated current. However, there are no reliable measurements covering a sufficiently wide range of parameters $m_u = u_{\text{current}}/u_{\text{jet}}$ and $\omega = \rho_{\text{current}}/\rho_{\text{jet}}$ (u = velocity, ρ = density; for data see, e.g.,

Yu. V. Ivanov, Izvestiya AN EstSSR, seriya fiziko-matematicheskikh nauk, 1962, no. 3; O.V. Yakovlevskiy, Izvestiya AN SSSR, seriya tekhnicheskikh nauk, 1958, no. 10;

Card 1/3

L 19357-66

ACCESSION NR: AT5011660

O. Pabst, Luftfahrttechnik, 6 (1960), no. 10). Consequently, appropriate experiments were carried out at the Kazakhskiy nauchno-issledovatel'skiy institut energetiki (Kazakh Scientific Research Institute for Power Engineering) during 1962-1963. The present paper reports some results of this study and compares it with the values calculated using the method of an equivalent heat conductivity problem developed by L. A. Vulis (Izvestiya AN KazSSR, seriya energeticheskaya, 1960, no. 2(18); L. A. Vulis, I. L. Senderikhina, Izvestiya AN KazSSR, seriya energeticheskaya, 1962, no. 1(22)). The calculation of the current's field is followed by a description of the experimental device (thermal current generated by the combustion of a butane-propane gas mixture), and numerous graphs comparing the experimental and theoretical values of various jet and current parameters (flow velocity, temperature, density, their ratios, excess density of momentum current, excess density of heat content current, etc. for isothermal and nonisothermal flow). "The author thanks L. A. Vulis and B. P. Ustimenko for directing the investigation." Orig. art. has: 7 formulas, 6 figures, and 1 table.

ASSOCIATION: none

Card 2/3

Card 3/3

KARELIN, V. Ye.; PALATNIK, I. B.; USTEMENKO, B. P.

"An investigation of heat and momentum transfer processes in a compressible turbulent jet in a uniform flow."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer , Minsk, 4-12 May 64.

Power Inst, AS KazSSR.

KARSHIN, V.Ye.

Use of the method of the equivalent problem in heat conduction theory
in calculating a nonisothermal axisymmetrical turbulent jet in a
concurrent flow: Izv. vuzov. tekhnolog. i prikl. tekhnol. no.1:6-17
1964.
(MIRA 18:8)

KARELIN, Y. A.

"Water Supply and Sewerage in Petroleum Refineries," by V. V. Abramov and Y. A. Karelin, Moscow-Leningrad, Gostoptekhizdat (State and Technical Publishing House of Petroleum and Mineral Fuel Literature), 1948. (Vodosnabzheniye i kanalizatsiya neftepererabatyvayushchikh zavodov).

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KARELIN, Y A. A.

Technology

(Water supply and canalization in the oil fields). Moskva, Gostoptekhnizdat, 1951.

Monthly List of Russian Accessions. Library of Congress, November 1952. UNCLASSIFIED.

KARELIN, Ye.A.; ABRAMOV, V.V., inzhener, retsenzent; TOLOCHKO, M.M.,
inzhener, retsenzent; KONYUSHKOV, A.M., redaktor

[Purifying industrial sewage of the petroleum industry] Ochistka
proizvodstvennykh stochnykh vod predpriatii neftianoi promysh-
lennosti. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-
toplivnoi lit-ry, 1953. 295 p. (MLRA 7:8)
(Petroleum industry) (Waste products)

KARELIN, Ya. A.

YAKOVLEV, S.V., kandidat tekhnicheskikh nauk; KARELIN, Ya.A.; MASLENNIKOV, H.A.; SHTEKLER, G.A., inzhener, redaktor; ~~GOLUBENKOVA~~, L.A., redaktor; DAKHNOV, V.S., tekhnicheskiiy redaktor

[Auxiliary installations in sewage purification stations] Vspomogatel'nye ustroistva ochistnykh kanalizatsionnykh stantsii. Pod red. S.V.Iakovleva. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1955. 176 p. (MLRA 8:7)
(Sewage--Purification)

KONYUSHKOV, Andrey Maksimovich; YAKOVLEV, Sergey Vasil'yevich; ABRAMOV, N.N. doktor tekhnicheskikh nauk, professor, retsenzent; ~~KARELIN~~, Ya.A., kandidat tekhnicheskikh nauk, dotsent, retsenzent; ~~ZANEVSKIY~~, M.S., dotsent, redaktor; SMIRNOVA, A.P., redaktor; MEDVEDEV, L.Ya., tekhnicheskii redaktor.

[Water supply and sewer systems] Vodosnabzhenie i kanalizatsiya.
Moskva, Gos.izd-vo lit-ry po stroitel'stvu i arkhitekture, 1955.
526 p. (MLRA 8:12)

(Water-supply engineering) (Sewerage)

KARELIN, Ya. A.

USSR, Chemical Technology. Chemical Products and Their I-12
Application--Water treatment. Sewage water

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9167

Author : Karelin, Ya. A.

Inst : Not given

Title : The Purification of Waste Waters from Refineries

Orig Pub: Vodosnabzheniye i san. tekhnika, 1955,¹No 2, 23-26

Abstract: The water consumption in refineries per ton of petroleum processed attains 10-80 m³; if the requirements of the plant steam heat electric power station are taken into account, the figure attains 120 m³. Of that total the condensation and cooling of the petroleum products account for 84%; the barometric condensers, 8%; washing requirements, 5%; other needs, 3%. The recycling of the standard-pure water and of part of the sewage water (SW) is an absolute necessity. The use of completely separate piping systems with separate grids for the

Card 1/2

KARELIN, Ya.A.

Canalization systems for oil field installations. Vol. 1
san. tekhn. no.7:8-13 0 '55. (MIRA 9:2)
(Oil fields) (Water supply engineering)

KARELIN, YA A

AID P - 3973

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 18/27

Author : Karelin, Ya. A.

Title : Design of shore installations for the intake from tankers and oil-carrying barges of petroleum wastes.

Periodical : Neft. khoz., v. 33, #12, 71-77, D 1955

Abstract : In order to prevent the contamination of water in harbors by petroleum wastes, special installations must be built for the intake and disposal of the drained residues from oil-carrying tankers and barges. The layout of such installations is described. Diagrams, 3 references, 2 Russian, 1954 and 1955.

Institution : None

Submitted : No date

KARELIN, Ya.A.

Mechanical and chemical purification of industrial waste water of a
Philadelphia refinery (From "The Petroleum Engineer" no.11, 1954).
Ved.1 san.tekh.no.5:32-35 My '56. (MLRA 9:9)
(Philadelphia--Water--Purification)

Karelin Ya. A.
USSR /Chemical Technology. Chemical Products
and Their Application
Water treatment. Sewage water.

H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1792

Author : Karelin Ya. A., Belinskiy M.L.

Title : Sewer Systems at Petroleum Production Bases

Orig Pub: Vodosnabzheniye i san. tekhnika, 1956, No 11,
13-17

Abstract: At petroleum production bases 2 sewer systems
are planned: an industrial and storm sewer sys-
tem and a household system. In the industrial
and storm sewer system are installed 2 sectional
petroleum traps, from which the sewage water
passes into ponds. If the sewage water contains
tetraethyl lead the latter is extracted with the
lightest aviation gasoline containing no ethyl

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USSR /Chemical Technology. Chemical Products
and Their Application
Water treatment, Sewage water.

H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1792

lead. After extraction the sewage water is
allowed to settle for 10-20 hours.

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KARLIN, Ya.A.

Layouts of sewer systems for washing and steaming centers of
railroad stations. Vod.i san.tekh. no.6:9-13 Je '57. (MLRA 10:7)
(Sewage disposal)

Karelin, Ya. A.

AUTHORS: Karelin, Ya.A. and Vorob'yeva, G.I. 65-10-6/13
 TITLE: Biochemical Purification of Effluent Waters from Refineries
 (Biokhimicheskaya ochistka stochnykh vod nefteperer-
 abatyvayushchikh zavodov)
 PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.10,
 pp. 29-34 (USSR)
 ABSTRACT: Laboratory investigations on the possibility of the
 application of bacteriological purification of refinery
 effluents are described. It was established that Pseudomonas
 bacteria actively decompose crude oil and individual hydro-
 carbons. Of the cultures separated, the most active were:
 Pseudomonas Putida Flugge, 1886; Pseudomonas Dacunhae (Gray
 and Thornton, 1928) and an undetermined type which was called
 Pseudomonas species. There are 2 figures, 6 tables and 5
 references, 1 of which is Russian and 4 English.
 ASSOCIATION: MISI imeni V.V. Kuybysheva
 AVAILABLE: Library of Congress
 Card 1/1

KARELIN, Ya. A.

AUTHOR: Karelin, Ya. A., a specialist with the MISI imeni
 Kuybyshev 93-5-14/19
 TITLE: How to Improve Refinery Water Supply and Sewer Systems
 (Usovershenstvovaniye sistem vodosnabzheniya i
 kanalizatsii na neftepererabatyvayushchikh zavodakh)
 PERIODICAL: Neftyanoye Khozyaystvo, 1957, ³⁵Nr 5, pp. 53-58 (USSR)
 ABSTRACT: The successful operation of a modern Soviet refinery
 requires hundreds of millions of cubic meters of water.
 Refineries producing mainly fuels require from 30 to 40
 cubic meters of water per ton of crude oil, when the
 temperature difference between the incoming and outgoing
 waters is 25°C. Refineries geared for the production
 of fuels and lubricants require 50 to 60 cu. m of water
 per ton of crude oil put through and refineries producing
 a greater variety of products require 70 - 80 cu. m.
 If the heat and power plant is included, the water require-
 ments are approximately 100 cu. m. per ton of crude oil.
 On the average 92% of water is used for condenser-cooling

How to Improve Refinery Water Supply and Sewer Systems 93-5-14/19
(Cont.)

purposes. Since in this case, as a rule, there is no direct contact with any product, the water is considered clean and can be recirculated in the system. Only 3% of the water is used for condensation through direct contact. In refineries processing sour crude the water used for condensation through direct contact becomes contaminated with hydrogen sulfide. Of the remaining 5% of water, 3% is used to replace evaporation losses and 2% for washing purposes. 96.4% of the water required by heat and power stations is used for indirect contact cooling and the remaining 3.6% for other purposes. The Glavneftepererabotka refineries report that only 48% instead of 94-96% of water is put again into the system, while 12 refineries use only fresh water. Every effort should be made to reduce the quantity of water discharged into the sewers and natural water reservoirs. New refineries provide for two types of water recirculation systems. One type is for equipment used in the refining of crude and heavy petroleum products and the other for equipment used in processing gas (C₅ and lighter) and light petroleum products as well as for lubricating oil cooling units and compressor stations. Provisions are also made for a recir-

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How to Improve Refinery Water Supply and Sewer Systems 93-5-14/19
(Cont.)

culating water systems for condensers of the atmospheric - vacuum pipestills. A repeated use of water is recommended for new refineries and for those which are being reconstructed.

V. Ya. Myagkov and Ya. G. Sorkin, co-authors of an article dealing with methods of improving the use of water and heat at refineries, are referred to as men who realize the importance of properly utilizing water and heat for refinery purposes. The selection of a sewage system should be dictated by economic considerations and local conditions. In this connection the problem of purifying industrial waste waters is of prime importance. Two sewage systems are proposed for the efficient operation of refineries:

- 1) A sewage system whose waters can be reused after treatment and
- 2) a sewage system whose treated waters are discharged. The following waters go into the first sewage system: a) water used for washing the refinery equipment and tanks, b) waste water from condensers and scrubbers except water from atmospheric (vacuum pipestill condenser) c) storm waters from various platforms and storage tank farms except crude oil storage tank farms. Water treating facilities of the first sewage system consist

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How to Improve Refinery Water Supply and Sewer Systems ^{93-5-14/19} (Cont.)

of grills, sandtraps, oil traps in which the water is to stand for two hours, ponds in which additional settling is to take place (6-24 hours) and a reserve tank with a capacity equal to a 3-day volume of waste waters, sand filters designed by I. L. Mongayt and I. D. Rodziller, and a collector tank with a capacity equal to a 2-hour consumption of water. The water is recirculated in the first system. The second sewage system consists of the following sewage networks: (1) a sewer network collecting waste waters containing emulsified oils from electrical desalting units, crude oil tank farms and deasphalting unit condensers; 2) a network collecting waste waters containing alkali sulfides; 3) a network collecting waste waters containing acids and sulfates; 4) a separate network collecting waters which require special treatment. Waste waters of this system undergo preliminary treatment and purification as they pass through various oil traps, sand traps, grills and other devices similar to those used in the first sewage system. Certain waste waters require, however, additional treatment like flotation, deodorization, neutralization, biochemical treatment and are then channeled to a large reservoir wherefrom several days later they are

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How to Improve Refinery Water Supply and Sewer Systems 93-5-14/19
(Cont.)

. action of the reagents water is separated from oil. The top layer, a relatively pure oil, is pumped to the crude oil storage tanks. The medium layer consisting of water, soluble matters and oil, goes again through the second dehydration stage. Organic reagents are used this time and the mixture is heated again, and allowed to separate. The recovered oil is pumped to crude oil storage tanks. The bottom layer representing heavy petroleum products, water and solid matters should be drained from the tanks and burned in special furnaces. Large refineries recovering considerable quantities of oil from oil traps should have an independent treating plant. A basic scheme of water supply and sewerage system has been worked out by the following specialists: V. V. Abramov (Giprosnetsneft'), S. I. Beletskiy (Giproneftezavod), N. M. Litvishkov (Giproazneft'), P.A. Mikhayev (Giprogrozneft'), S. D. Klimov (Giprogaztopprom), B. A. Mitkalev (UfNII) and Ya. A. Karelin (MISI imeni V. V. Kuybyshev). The advantage of this scheme is as follows: The quantity of industrial waste waters discharged into natural bodies of water is reduced to a minimum by the use of the above mentioned methods of treating the refinery waste waters. This reduction of waste waters cuts down on the pollution of natural waters. There are 2 figures.

ASSOCIATION: MISI imeni Kyubysheva

AVAILABLE: Library of Congress

Card 6/6

KARELIN, Yakov Aleksandrovich; KONYUSHEV, A.M., red.; L'VOVA, L.A.,
vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Purification of waste waters from oil fields and petroleum
refineries] Ochistka stochnykh vod neftiannykh promyslov i
zavodov. Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-
toplivnoi lit-ry, 1959. 343 p. (MIRA 11:11)
(Petroleum waste)

KARELIN, Ya.A.; BELINSKIY, M.L.

Sewerage schemes for sites of main line pumping stations. Vod.
i san.tekh. no.3:15-18 Mr '59. (MIRA 12:2)
(Pumping stations) (Sewerage)

KARELIN, Ya. A., Doc Tech Sci -- (diss) "Methods of cleaning of production drainage waters in enterprises of the petroleum and the petrochemical industry." Moscow, 1960. 31 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Labor Red Banner Construction Engineering Inst im V. V. Kuybyshev); 240 copies; price not given; list of author's works at end of text (16 entries); (KL, 27-60, 151)

KONYUSHKOV, Andrey Maksimovich, kand.tekhn.nauk; YAKOVLEV, Sergey
Vasil'yevich, doktor tekhn.nauk. Prinimal uchastiye FEDOROVSKIY,
N.A., inzh. ABRAMOV, N.N., prof., doktor tekhn.nauk, retsenzent;
KARLIN, Ya.A., dotsent, kand.tekhn.nauk, retsenzent; ZANEVSKIY,
M.S., dotsent, nauchnyy red.; SMIRNOVA, A.P., red.izd-vs;
EL'KINA, E.M., tekhn.red.

[Water-supply and sewerage] Vodosnabzhenie i kanalizatsiya. Izd.2.,
ispr. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit. ma-
terialam, 1960. 534 p. (MIRA 13:12)

(Water-supply engineering)

(Sewerage)

SHISHKIN, Zakhar Nesterovich; KARELIN, Yakov Aleksandrovich, dotsent;
KOLOBANOV, Sergey Konstantinovich, dotsent, kand.tekhn.nauk;
YAKOVLEV, Sergey Vasil'yevich, doktor tekhn.nauk; ZHUKOV,
A.I., prof.; GULYAYEV, N.F., kand.tekhn.nauk; SUKHIY, P.A.,
inzh., retsenzent; POPOVA, N.M., kand.tekhn.nauk, retsenzent;
SMIRNOVA, A.P., red.izd-va; GILENSON, P.G., tekhn.red.;
TEMKINA, Ye.L., tekhn.red.

[Sewerage] Kanalizatsiia. Izd.2., ispr. Pod red. A.I.Zhukova.
Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam,
1960. 592 p.

(Sewerage)

(MIRA 14:4)

KARELIN, Yakov Aleksandrovich; PEREVALOV, Vyacheslav Georgiyevich;
SMIRNOVA, A.P., red. izd-va; OSENIKO, L.M., tekhn. red.

[Removal of petroleum products from waste waters; foreign
practices] Ochistka stochnykh vod ot nefteproduktov; za-
rubezhnyi opyt. Moskva, Gos. izd-vo lit-ry po stroit.,
arkhit. i stroit. materialam, 1961. 130 p. (MIRA 14:5)
(Sewage--Purification)

(United States--Petroleum industry--Water supply)

KARELIN, Ya.A.; kand.tekhn.nauk

Disposal of petroleum refinery waste waters. Zhur. VKHO 6 no.2:166-
172 '61. (MIRA 14:3)

(Sewage disposal) (Petroleum refineries)

KARELIN, Ya.A.; NAZAROV, I.I.; SHEVTSOV, D.A.; ZHUKOV, D.A.; MEDEM, V.M.

Experimental investigation of the two-stage biochemical purification of the waste waters of electric desalters of the Orsk Petroleum Refinery. Khim. i tekhn. topl. i masel 6 no.11:23-27 N '61.

(MIRA 14:12)

1. Moskovskiy inzhenerno-stroitel'nyy institut im. V.V. Kuybysheva i Orskiy neftepererabatyvayushchiy zavod.
(Orsk—Petroleum waste—Purification)

S/065/61/000/008/006/009
E030/E535

AUTHOR: Karelin, Ya.A.

TITLE: Improvement of refinery waste disposal systems by
surface-active agents

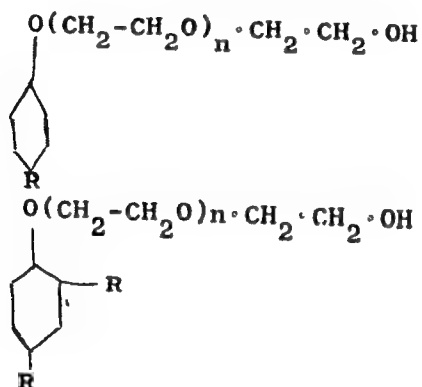
PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1961, No.8,
pp.36-41

TEXT: The waste water from the electrolytic desalting and
ATK washing plants had an unsatisfactorily high content of
stable emulsions of petroleum products. This was attributed to
the use of ionic surface-active sulphonates and H_4K (NChK) that
was supplied by the Yaroslav NPZ. In an effort to improve the
condition of the waste water, the use of ОП-10 (OP-10) in the
electrolytic refining units was tried during investigations
carried out in November 1958 at the Novo-Gor'kiy nefteperera-
batyvayushchiy zavod (Novo-Gor'kiy Refinery). OP-10 is a non-
ionic surface-active agent with the structure

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Improvement of refinery waste ...

S/065/61/000/008/006/009
E030/E535



where $n = 10$ to 12 and the R are hydrophobic alkyl groups with 9 to 10 atoms of C counter-balancing the hydrophilic polyethylene glycol groups. It is a light-yellow to brownish yellow paste with a mouldy smell with specific weight of 1.06 to 1.08 and pH of the aqueous solution (concentration 10 g/l) 6.8.

Card 2/3

Improvement of refinery waste ...

S/065/61/000/008/006/009
E030/E535

The best use of OP-10 was found to be by addition as feed to the pumps in the waste system in the form of a 2.5% aqueous solution using 50 g/ton of petroleum product. The electric fields in the electrolytic units were 1175 V/cm in the first stage and 2350 V/cm in the second; the temperature was 80°C. Comparing corresponding monthly figures before and after the use of OP-10, a drop from 243 mg/l to 57 mg/l of petroleum products in the waste water was observed. As a result, the use of OP-10 is proposed as cheaper and easier than that of ionic surface-active sulphonates; biochemical agents have still to be used for the purification process of the water (to eliminate the petroleum and mouldy smell of the surface-active agents used). There are 4 figures, 5 tables and 6 references: all Soviet.

Card 3/3

KARELIN, Ya.A.

Biochemical purification of waste waters from the Electrical Desalting Unit using the OP nonionic surface-active agents. Khim. i tekhn. topl.i masel 7 no.1:9-14 Ja '62. (MIRA 15:1)

1. Moskovskiy ~~inzhenerno-stroitel'nyy~~ institut im. V.V.Kuybysheva.
(Petroleum--Refining--Desalting)
(Sewage--Purification)

KARELIN, Ya.A.; BELINSKIY, M.L.

Sewer systems for sections of filling stations of petroleum
products pipelines. Neft. khoz. 40 no.1:58-64 Ja '62. (MIRA 15:2)
(Petroleum waste)

KARELIN, Ya.A., kand.tekhn.nauk; SUKHODOL'SKIY, A.M., inzh.

Use of combined structures for the purification of sewage by
trickling. Vod. i san. tekhn. no.6:38-40 Je '62. (MIRA 15:7)
(Sewage--Purification)

ZHUKOV, D.D.; KARELIN, Ya.A.; MEDEM, V.M.; NAZAROV, I.I.; SHEVTSOV, D.A.

Additional experimental investigations of a two-stage biochemical purification of waste waters from the Electrical Desalting Unit of the Orsk Petroleum Refinery. Khim.i tekhn.topl.i masel 7 no.9:19-23 S '62. (MIRA 15:8)

1. Moskovskiy inzhenerno-stroitel'nyy institut im. V.V.Kuybysheva i Orskiy neftepererabatyvayushchiy zavod.
(Orsk--Petroleum--Refining) (Sewage--Purification)

KARELIN, Ya.A.; SOYLOV, A.G.

Quality of the waters injected into producing reservoirs.
Neft.khoz. 41 no. 12:40-45 D '63. (MIRA 17:6)

ALEKSEYEVA, V.A.; KARELIN, Ya.A.

Removing dissolved petroleum from waste water using ozone.
Nefteprom. delo no.4:33-35 '63. (MIRA 17:8)

1. Moskovskiy inzhenerno-stroitel'nyy institut im. Kuybysheva.

ALEKSEYEVA, V.A.; KARELIN, Ya.A.

Final purification of waste waters with ozone. Neftaper. i
neftekhim. no.5:19-21 '63. (MIRA 17:8)

1. Moskovskiy inzhenerno-stroitel'nyy institut im. V.V.
Kuybysheva.

L 18928-65 Pb-4/Pa-4 AFWL/AMD

ACCESSION NR: AP5002813

S/0065/64/000/008/0029/0037

AUTHOR: Karelin, Ya. A.; Ikramov, M.; Zhukov, D. D.; Komarov, D. Ye.

TITLE: Investigation of industrial waste waters of an oil refinery and their purification by a biochemical method

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 8, 1964, 29-37

TOPIC TAGS: petroleum industry, waste disposal, water sanitation, biochemistry

ABSTRACT: Concise information is presented on the amount, composition and basic properties of the sewer waters of the Yaroslavl Oil Refinery imeni D. I. Mendeleev and their biochemical purification. The sewer waters of this refinery were found to be characterized by the presence of petroleum and petroleum products, volatile and nonvolatile phenols, nitrobenzene, fatty acids, paraffin, and sulfur compounds. In spite of the complex and varied composition of the organic contaminants contained in the sewer waters of the oil refinery, their biochemical purification was found to be quite possible. Data were obtained that can be used in the planning of industrial purification installations. The average oxidative capacity of two-stage aeration installations in work on total purification should be taken to be 500 g/m³ at a concen-

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ACCESSION NR: AP5002813

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tration of active sludge of 4 g/liter with respect to dry matter. Effective operation of the aeration installations required the delivery of 50 cubic meters of air per kilogram of reduced biochemical oxygen consumption, at a depth of the aeration tanks of 4 meters. The duration of the aeration period was found to depend on the degree of contamination and temperature of the water to be purified. For sewer waters analogous to those investigated, an aeration period of 18-24 hours, including 6-8 hours for the first stage and 12-16 hours for the second, is recommended. The temperature of the sewer water should be in the range of 20-28°C. Orig. art. has 1 figure, 1 graph, and 3 tables.

ASSOCIATION: MISI

SUBMITTED: 00

ENCL: 00

SUB CODE: GO, LS

NO REF SOV: 005

OTHER: 002

JPRS

Card 2/2

ZHUKOV, Aleksandr Ivanovich, prof., doktor tekhn. nauk; KARELIN,
Yakov Aleksandrovich, prof.; KOLOBANOV, Sergey
Konstantinovich, dots., kand. tekhn. nauk; YAKOVLEV,
Sergey Vasil'yevich, prof.; LUKINYKH, N.A., kand. tekhn.
nauk, retsenzent; MOKGAYT, I.L., kand. tekhn. nauk,
retsenzent; SHKUNDIN, R.F., inzh., retsenzent; SKVORTSOVA,
I.P., red.

[Sewerage] Kanalizatsiia. Izd.3., ispr. i dop. Moskva,
Stroiizdat, 1964. 641 p. (MIRA 18:2)

KARBEJIN, Ya.A., doktor tekhn. nauk; NYAZANOV, V.L., inzh.

Horizontal settling tank with vertical water flow. Vol. 1 ser.
tekhn. no.12:35-36 D '63 (NIRA 18:2)

KARELIN, Ye.

American high-temperature gas cooled from "Nuclear Energy", no.150,
1960). Atom. energ. 10 no.3:295-297 Mr '61. (MIRA 14:3)
(Pitch-bottom, Pennsylvania—Gas cooled reactors)

KARELIN, Ye.

Atomic power plant in Sizewell (from "Nuclear engineering," 6, no. 56, 7, 1961). Atom. energ. 10 no. 5:536-537 My '61. (MIRA 14:5)
(Sizewell, England--Atomic power plants)

KARLIN, Ye.

Equipment of the atomic power plant at Dungeness. (from "Nuclear
Energy" 14, no.148, 1960. Atom. energ. 10 no.1:91-92 Ja '61.
(MIRA 13:12)
(Dungeness, England--Atomic power plants)

KARELIN, Yu.

Nomogram for rapid determination of series capacitance connections
or parallel resistance connections. Radio no.11:Supp.31

(MIRA 10:10)

(Radio circuits)

GREBENNIKOV, O.F.; MYASNIKOV, S.I.; KARELIN, Yu.A.; ZUBKOV, G.A.

Attachment to the 16S-2 "Kiev" motion-picture camera for semiautomatic control of the lens diaphragm. Trudy LIKI no.11:35-38 '64.

1. Kafedra kinofotoapparatury Leningradskogo instituta kinoinzhenerov. (MIRA 18:10)

15.9205

31620
S/138/61/000/012/002/008
A051/A126

AUTHORS: Kartsev, V.N.; Karelnina, G.G.; Rozova, N.I.

TITLE: Properties of siloxane rubber vulcanizates with a low content of vinyl groups

PERIODICAL: Kauchuk i rezina, ²⁸no. 12, 1961, 7 - 11

TEXT: Experimental results are submitted from an investigation of test samples of vinylsiloxane polymers with a low content of vinyl groups [CKTB (SKTV)], as compared to dimethylsiloxane rubber [CKT (SKT)]. The SKTV samples were produced on an experimental BHHICK (VNIISK) equipment, using "acetic" (samples no. 1, 2, 226) and "alkaline" (sample no. 19) catalysts. The SKTV and SKT based mixes were produced on laboratory rollers, according to the following composition in weight parts to 100 weight parts of raw rubber:

	SKTV	SKT
silica gel Y -333 (U-333)	50	50
zinc oxide	5	5
benzoyl peroxide paste (95% benzoyl peroxide and siloxane oil, in the ratio of 1 : 1)	1.26	4.2

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Properties of siloxane rubber vulcanizates with ...

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A051/A126

It was found that vulcanizates based on a SKTV rubber mix containing silica gel U-333 and a lowered quantity of benzoyl peroxide (0.6 w.p.) are characterized by a reduced residual deformation and a higher thermal stability than vulcanizates of the standard SKT rubber mixes. The thermal stability of the SKTV-based mixes may be increased by replacing the zinc oxide with iron oxide or titanium dioxide. The SKTV and SKT vulcanizates do not differ in their tendency to destruction when heated in a closed system, at 200°C. They also have similar dielectric properties. The vulcanizates of the SKTV siloxane rubber, produced in the presence of the "acidic" and "alkaline" catalysts, were found to be the same in their main physico-mechanical characteristics. The SKTV vulcanizates, produced with dicumyl peroxide or ditertiary butyl peroxide, as compared to vulcanizates containing benzoyl peroxide, were found to have a lower residual deformation and a much lesser tendency to destruction when heated without air. It was further found that mixes containing channel black, do not vulcanize, even in the presence of increased amounts of dicumyl peroxide or ditertiary butyl. In the case of furnace carbon black, vulcanizates were obtained with satisfactory properties. The SKTV vulcanizates containing the furnace carbon black and the ditertiary butyl peroxide are equivalent to vulcanizates based on the same rubber, containing the U-333 silica gel, but the former do have in-

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Properties of siloxane rubber vulcanizates with ...

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A051/A126

creased residual deformation after compression. Tests for electroconductivity of the SKTV vulcanizates containing the furnace carbon black indicated that these rubbers are semi-conductors (specific volumetric electrical resistance is equal to 1.0×10^6 ohm/cm). There are 8 tables, 2 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The reference to the most recent English-language publication reads as follows: G.M. Konkle, R.M. Savage, Rubb. Age, no. 6, 975 (1959).

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva (Scientific Research Institute of Synthetic Rubber im. S.V. Lebedev)

Card 3/3

BORISOV, S.N.; KARELINA, G.G.

Dependence of the properties of rubber made from vinyl siloxanes
on the vinyl group content of the elastomers. Kauch. i rez. 22
no.6:6-10 Je '63. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteti-
cheskogo kauchuka im. S.V. Lebedeva.
(Rubber, Synthetic—Testing) (Siloxanes)

KARELINA, G. G.

3

18.8310

26908

S/138/61/000/005/001/005
6031/1129

15.9202

AUTHORS: Klebanskiy, A. L., Tsukerman, N. Ya., Kartsev, V. N., Zubatin, A. L.,
Trenko, Yu. V., Mal'shina, L. P., Borovikova, N. A., Karelina, G. G.,
Rozhkov, Yu. P.

TITLE: A new type of chloroprene rubber: liquid nairite
(This work was awarded the second prize at the VkhO im. D. I. Mendele-
yev competitions in 1959)

PERIODICAL: Kauchuk i rezina, no. 5, 1951, 1 - 5

TEXT: The high chemical stability, the gasoline-petroleum stability and
ozone-resistance of chloroprene rubber makes it a suitable material for anti-corro-
sion coating and hermetic sealing. However, the difficulty of producing highly-
concentrated solutions based on commercial nairite limited the application of the
latter in anti-corrosion technique. It has been assumed that the use of low-mole-
cular polymers for this purpose would enable one to obtain low-viscose, highly-con-
centrated solutions satisfying the anti-corrosion techniques. One of the methods
for producing low-molecular polymers is the use of the polymerization of increased
concentrations of regulator-compounds able to break the chains and to form new ac-

Card-1/5

3

A new type of chloroprene rubber: 26938 liquid nairite

5/122/61/000/005/001/006
A051/A129

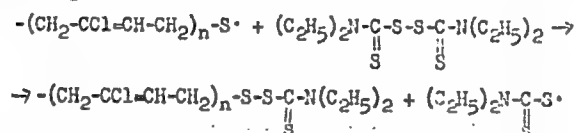
tive centers. Sulfurous compounds, such as mercaptane, thioncids, xanthogenesulfides, are widely used as regulators. When studying the action of n-tetradecylmercaptane, diisopropylxanthogenedisulfide and bisethylxanthogenedisulfide during the process of polymerization of chloroprene, it was established that with an increase in the concentration of the regulator the molecular weight of the polymer drops correspondingly and the plasticity of the rubber increases. It was assumed that the use of greater quantities of bisethylxanthogenedisulfide in the polymerization of chloroprene in emulsion decreases the molecular weight of the polymer and yields low-viscosity solutions of rubber. An attempt was made to produce low-molecular polychloroprene by polymerization of chloroprene in the presence of sulfur with subsequent destruction of the polymer. It was shown that the action of sulfur differs from that of other regulators. The effect of sulfur on the polymers of chloroprene is shown by the scheme: $-(CH_2-CCl=CH-CH_2)_n-S_x-(CH_2-CCl=CH-CH_2)_n-S_x$, where $x=2-6$. The sulfur forms linear bonds in the polymer chain. With an increase in the bound sulfur content in the polymer the molecular weight of the polymer decreases in the subsequent interaction with thiuram from 600,000 to 280,000 with 0.3% of bound sulfur and from 300,000 to 43,000 with 1% of bound sulfur. The quantity of reacted thiuram increases respectively. The destruction scheme is given as follows:
1) The formation of free radicals under the effect of the thermal action or thiuram;

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26903 S/128/61/000/005/001/006
A new type of chloroprene rubber; liquid nairite A051/A129

$-(CH_2-CCl=CH-CH_2)_n-S-S-S-(CH_2-CCl=CH-CH_2)_m-S-S-S- \rightarrow -(CH_2-CCl=CH-CH_2)_n-S$;

2) Recombination of the polymer radical with molecular thiuram and splitting :
off of the latter along the -S-S-bond:



Based on the outlined assumptions of the mechanism of the sulfur action during the process of chloroprene polymerization and destruction of the polymer under the effect of the chemical masticating substances, the conditions for producing low-molecular chloroprene rubber-"liquid" nairite were developed. The liquid types of nairite can be obtained on a typical apparatus. The sulfur can be introduced in the form of solutions in mineral oils as well as aqueous dispersions obtained in the presence of emulsifiers and protective colloids. It was shown by V. K. Kartsev, M. A. Gutman, G. G. Karelina, F. Ye. Berman, Ye. G. Malinovskaya, M. B. Shur at VNIISK, no. 2389, 1951, that for mastication the most effective system is mercapto-

Card 3/6

3 /

A new type of chloroprene rubber; liquid nairite

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AC51/1102

benzothiazol (captax)-diphenylguanidine (DPG). To increase the activity of these agents, tetramethylthiuramdisulfide was added (thiuram D) or tetramethylthiuramdisulfide (thiuram E). Literature data indicate that active protecting agents of polychloroprene are the piperidine salt of hexamethylenedithiocarbamic acid or ammonium hexamethylenedithiocarbamate. The order of introduction of the agents plays an important role. The effect of the type and composition of the carbon black on the solubility of the rubber mixtures from "liquid" nairite was investigated. Only the thermal carbon black helps to retain complete solubility. Higher indices of relative elongation when filling with 100 v.p. and over are achieved with thermal carbon black. The composition and technology for preparing the rubber mixtures based on the "liquid" nairite with thermal carbon black as filler yielded highly-concentrated solutions (70 - 75%). These solutions are suitable for sealing various equipment by the same methods which are used in the case of dye and varnish coatings. Tests of coatings made of liquid nairite in experimental and natural samples in various industrial fields showed the expediency of using this product as a material for protecting the metal from corrosion, erosion, cavitation and also as a material for hermetic sealing. There are 4 tables and 21 references; 2 Soviet-bloc, 19 non-Soviet-bloc. The references to the 4 most recent

Card 4/6

3

A new type of chloroprene rubber; liquid nairite

26983

S/138/61/000/005/001/006
A051/A120

English-language publications read as follows: Corros. Technol., 5, no. 4, 107 (1958); R. B. Seymour a. oth., Plastics for Corrosion Resistant Application, N.Y., 1955, 90; Rubb. a. Plast. Age, 39, no. 8, 684 (1958); Corros. Technol., 3, no. 3, 89 (1956).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lobedova (All-Union Scientific Research Institute of Synthetic Rubber im. S. V. Lebedev)

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Card 5/6

KARELINA, G. G.

15.9201

275141
S/123/61/000/005/002/006
A0514129

AUTHORS: Labutin, A. L., Klebanov, A. L., Tsukerman, N. Ya., Kartsov, V. N.,
Trankov, Yu. V., Kal'shina, L. P., Borovikova, N. A., Karelina, G. G.,
Roznikov, Yu. P.

TITLE: "Liquid nairito" - a new material for rubberizing

PERIODICAL: Kauchuk i rezina, no. 6, 1961, 5 - 8

TEXT: The authors state that in the chemical destruction of "liquid" nairito, highly concentrated solutions can be produced which are applicable as a material for rubberizing. In the USSR a safer binary solvent, consisting of 2 weight parts of ethylacetate and 1 w.p. of gasoline is used in nairito adhesives. Experiments showed, however, that this solvent in "liquid" nairito is not suitable for many technical reasons. Better results were obtained in using a ternary solvent consisting of 76% solvent, 19% turpentine and 5% n-butanol. The latter component does not dissolve the nairito, but facilitates the use of the brush for painting and good coating distribution. It was noted that film vulcanization from liquid nairito at 20°C does not show positive results. Thus various forms of thermal vulcanization were investigated; vulcanization with heated air, live vapor, hot water

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275hh
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A051/A129

"Liquid nairite" - a new material for rubberizing

and infra-red irradiation. It was established that the most suitable method was vulcanization by hot air. The physico-mechanical indices of nairite coatings vulcanized in air at various temperatures are given in Fig. 1. Fig. 2 shows the relationship between the temperature and duration of the vulcanization. The most suitable temperatures of vulcanization in air are within the range of 100 - 142°C. It was noted that the liquid nairite coatings did not possess the proper adhesion to metal. Thus certain other adhesives or coatings ensuring better adhesion between metal and coating were sought. The best results were obtained with the following three materials: standard leuconate (organic base: n, n', n" - triisocyanate-triphenylmethane), chloronairite adhesive (organic base: chloronairite and nairite) and a primer, tentatively called epoxide primer (organic base: epoxide resin, chloronairite and nairite). The chemical stability and anti-corrosion properties of the vulcanized nairite coatings were studied. The conclusion was drawn that 1.2-mm nairite coatings in combination with a water-resistant coating applied three times can reliably protect metals from corrosion due to aqueous solutions of many acids, alkali and salts. The coatings were not resistant to the action of oxidizing agents, aromatic and halided solvents. Rubber coatings differ from varnish and plastic coatings by an increased resistance to abrasive wear. An attempt was made

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"Liquid nairite" - a new material for rubberizing

275hh
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A051/A129

to determine the resistance of nairite coatings under conditions of dry friction using the Grosselli-type machine. It is concluded that coatings of so-called crystallizing liquid nairite obtained in low-temperature polymerization are superior to other rubbers in their wear-resistance, excepting vulcollane, which has a unique resistance to abrasive wear. It was established that coatings of liquid oil nairite are superior to coatings of bakelite, polyethylene and caprone, when tested in rapidly flowing sea water. Tests have further shown that liquid nairite as a material for coatings will become widely used in industry in the next few years. At present tests are being conducted in the North Sea and the Atlantic Ocean on propellers of fishing trawlers coated with liquid nairite for protection from corrosion, erosion and cavitation. Mechanical plants are testing steel covers of refrigerators and condensators coated with nairite. These were previously manufactured from non-ferrous metals. Certain chemical plants have installed diaphragm valves, the interior of which is covered with liquid nairite to prevent corrosion from acid solutions, alkali and salts. The possibility of using nairite coatings in various instruments as a means for preventing spark formation in percussion has also been revealed. Finally, it was established that these coatings can be used in certain constructions for hermetic sealing. At the Moscow TETs NO 12 a vacuum-condensator of a mass-produced 50 thousand kw steam turbine withstood a

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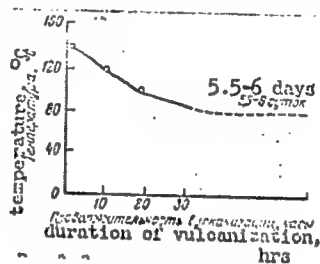
"Liquid nairite" - a new material for rubberizing

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A051/A129

testing period of one and a half years with the brass pipes and steel pipe boards coated with liquid nairite. K. S. Shmarey, O. P. Abolina, A. I. Konstantinova and G. A. Selivanovskaya took part in the work. There are 2 tables and 2 sets of graphs.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kau-
chuka im. S. V. Lebedeva (All-Union Scientific Research Institute of
Synthetic Rubber im. S. V. Lebedev)

Fig. 2. Dependence of the vulcanization
duration of the coatings made of liquid
nairite on the temperature



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15.9209
11.2219

AUTHORS: Korotkina, D.Sh.; Vinogradova, V.V.; Karelina, G.G.

TITLE: Copolymerization of unsaturated phosphor-organic compounds

PERIODICAL: Kauchuk i rezina, no. 4, 1962, 1 - 3

TEXT: The effect of the phosphorous atom on polymer properties was investigated and a comparison was made of the sodium-butadiene and acryl rubber properties with those of similar polymers containing phosphorous in the side chain. The ethers of allyl-, butadiene-, isoprene-styrene-phosphene acids were used as the phosphorous-containing monomers in the experiments. The ФЭК-М (FEK-M) photocolormeter was used to determine the phosphorous content in the initial products and polymers. The introduction of the phosphorous atom into the polymer chain of the sodium-butadiene rubber was found, in most cases, to improve considerably the physico-mechanical properties of the vulcanizates at low temperatures, as compared to the sodium-butadiene rubber produced by the emulsion method. The properties of the acryl polymer were considerably improved at low temperatures upon introducing 1% of phosphorous into the polymer. The following conclusions could be drawn: the ethers of the unsaturated phosphene acids copolymer-

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Copolymerization of

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ize with the butadiene and butylacrylate, forming rubber-like and liquid polymers. The introduction of the phosphorous atom into the polymer chains of the sodium-butadiene and butylacrylate rubbers improves their properties at low temperatures, increases the resistance to various solvents and, in some cases, increases the physico-mechanical indices of the rubbers. There are 3 tables. The reference to the most recent English-language publication reads as follows: J.M.C.Cormack, Pat. USA 2671078, 2671079, C.A., 48, 6738 (1954). ✓

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka (All-union Scientific-Research Institute of Synthetic Rubber)

Card 2/2

KOROTKINA, D.Sh.; VINOGRADOVA, V.V.; KARELINA, G.G.

Copolymerization of unsaturated organophosphorus compounds.

Kauch.i rez. 21 no.4:1-3 Ap '62. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka.

(Phosphorus organic compounds) (Polymerization)

L 10748-63

EPR/ENP(j)/EPP(c)/EWT(m)/BDS--AFFTC/ASD--PS-4/

Pc-4/Pr-4--RM/WW/MAY

ACCESSION NR: AP3003286

S/0138/63/000/006/0006/0010

AUTHOR: Borisov, S. N.; Karelina, G. G.

TITLE: Dependence of vinylsiloxane rubber vulcanizates on the content of vinyl groups in elastomers

SOURCE: Kauchuk i rezina, no. 6, 1963, 6-10

TOPIC TAGS: polymerization, vulcanization, properties of vulcanizates, vinyl-phenylsiloxane rubbers, methylvinylsiloxane rubbers, tensile strength, elongation, heat resistance, low-temperature resistance, network density, deformation, MV-1, VF-1

ABSTRACT: The effect of the vinyl-group content on the properties of vinylsiloxane vulcanizates has been studied in detail. Dimethylsiloxane rubbers containing 0.5 to 10 mol% RC_2H_5SiO (where $R = CH_3$ or C_6H_5) groups were used. The monomers were synthesized by hydrolysis of equimolar mixtures of dimethyl- with methylvinyl- or vinylphenyldichlorosilane in calculated amounts of cyclodimethylsiloxanes and polymerized in the presence of concentrated sulfuric acid or aluminum sulfate dihydrate. Mixes containing 100 parts rubber and 50 parts U-333 light-colored filler

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ACCESSION NR: AP3003286

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were vulcanized with benzoyl peroxide or sulfur and thiuram. The optimum dose of benzoyl peroxide for vinylphenylsiloxane rubbers (I) was found to be 0.4% regardless of the content of the vinylphenyl group. For effective sulfur vulcanization the vinyl-phenyl-group content in rubbers must be at least 1%. The optimum degree of vulcanization is attained faster for methylvinylsiloxane rubbers (II) than for I, in which the vinyl groups are hindered by phenyl radicals at the same Si atoms of the polymer chain. The tensile strength and elongation of sulfur and peroxide vulcanizates II and I containing 1 to 10% vinyl groups vary from 42 to 28 kg/cm² and 255 to 140%. The heat resistance of I vulcanizates is somewhat higher than that of II vulcanizates, owing to the hindering effect of the phenyl groups; peroxide vulcanizates exhibit higher heat resistance than sulfur vulcanizates. Vulcanizates of rubbers containing 1% vinyl groups (MV-1 and VF-1 rubbers) exhibit satisfactory properties after aging for 10 days at 250C. The low-temperature resistance of the vulcanizates is determined mainly by the second radical at the Si atom. It is higher in the presence of phenyl groups, which retard rubber crystallization. The low-temperature resistance at -60C of sulfur vulcanizates of MV-1 and VF-1 rubbers is higher than that of peroxide vulcanizates. Increasing the network density of MV-1 vulcanizates by using larger amounts of benzoyl peroxide increases their low-temperature resistance. Study of the deformation of vulcanizates after compression showed that it is lowest for peroxide vulcanizates of

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All Scientific Research of Synthetic Rubber

ROMASHKEVICH, I.F.; KARELINA, G.N.

Production of methane and organic fertilizers through fermentation
of wood waste and manure. Mikrobiologiya 30 no.1:146-151 Ja-F '61.
(MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut udobreniy i
agropochvovedeniya, Moskva.
(METHANE) (FERTILIZERS AND MANURES)
(WOOD WASTE)

10. 10.

KARELINA, N.A.

Positive column of a helium discharge. N. A. Karelina (*J. Physics, U.S.S.R.*, 1942, 6, 218—223).—The dependence of potential gradient, electron temp. (T_e), and electron concn. on the radius and gas pressure (p) of the positive column in a He discharge has been investigated for $p = 10^{-4}$ —1 mm. and discharge current 300 ma. in a tube 32 mm. in diameter. The results agree with calculations for low-pressure plasma by Klarfeld's method (*ibid.*, 1941, 6, 165). At $p = 0.007$ mm. the val. of T_e is 188,000° K. L. J. J.

H-11 Electrotech Inst Moscow

GTRSP, VOL. 2, No. 2

Karelina, N. A. and Klyarfel'd, B.N. (All-Union Institute of Electrical Engineering); Drops in potential at electrodes in discharges of inert gases, 1235-41.

"A study was made of the drop in potential at the electrodes in arc discharges in He, Ne, and Ar, as a function of the distance between the cathode and the anode. The distortion of the positive column, produced in any way whatever, has the properties of a cathode. In particular, the potential drop on discharge, when the anode is made to approach the place of distortion, is similar to what takes place on the approach of the cathode to the anode in the nonexcited discharge. Probing measurements carried out in the region close to the anode may lead to significant errors if one does not take the necessary precautions."

Zhurnal Tekhnicheskoi Fiziki, Vol. 18, No. 10 (1948)

ASAC 51.4 DETAIL LITERATURE CLASSIFICATION

KARELINA, N. A.

S. A.

sect. A

Electrochemistry

541.135.5

3978. Diffusion-type non-polarizable electrodes. S. YA. TURLYGIN AND N. A. KARELINA. *Dokl. Akad. Nauk SSSR*, 79, 965-8 (No. 6, 1951) *In Russian*.

A detailed illustrated description of a new non-polarizable Zn/ZnSO₄ electrode, its theory and operation. It is claimed that the electrode is stable and protected against penetration of other ions; as, moreover, the results are reproducible, telluric currents can be easily studied.

F. LACHMAN

TURNING, S. YA.; KARLINA, E.A.

Geophysics

Influence of dry land and sea on the distribution of natural electric currents in Earth's crust, Izv. AN SSSR. Ser. geofiz., No. 4, 1952.

Monthly List of Russian Accessions. Library of Congress, November 1952. UNCLASSIFIED.

TURLYGIN, S.Ya. [deceased]; KARELINA, N.A.

Contact electrodes for measuring electrical current and voltage in the
ocean. Trudy MOI 7:3-14 '56. (MIRA 9:9)
(Ocean) (Electric measurements)

TURLYGIN, S.Ya. [deceased]; KARMLINA, N.A.

Nonpolarizing diffusion electrodes for measuring weak currents occurring
in any medium. Trudy MGI 7:15-26 '56. (MLRA 9:9)
(Electric measurements) (Terrestrial electricity)

9.3120 (1003, 1137, 1140)

21438

S/109/61,000/001/017/023
E140/E163

AUTHORS: Yasnopol'skiy, N.L., Karelina, N.A., and Malysheva, V.S.

TITLE: Certain results of the investigation of secondary electron emission from the backs of magnesium oxide emitters

PERIODICAL: Radiotekhnika i elektronika, Vol.6, No.1, 1961, pp. 146-152

TEXT: A thin-film secondary electron emitter permitting emission from the face opposite that irradiated by the primary electrons is described. Aluminium films between 100 and 1000 Å and MgO emitters deposited on them have been studied. It is shown that reduction of the Al thickness from 3000 to 350 Å permits reduction of the working potential from 11 - 18 to 3 - 4 kV at secondary emission factors of the order of 5 - 8. It has been found that under certain conditions the secondary emission from such targets can pass into a self-maintained emission. The device used is shown in Fig.1 in which K is the cathode, A - anode, K₁ - collector of reflected primary electrons and forward emitted secondary electrons, Э - secondary electron emitter, Card 1/3

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E140/E163

Certain results of the investigation of secondary electron emission from the backs of magnesium oxide emitters

C₃ - mesh base of emitter, C - grid for acceleration of electrons emitted from the back of the target, K₂ - collector for primary electrons passing completely through the emitter and secondary electrons emitted from the back. With certain potentials in this system it is found that the secondary emission from the back of the target will increase to a value of the order of 800 I_p and continue to flow after the primary beam is cut off. Initially this emission is relatively stable and easily excited. With time this behaviour deteriorates, apparently connected with impoverishment of the secondary-emission properties of the MgO layer. Possible explanations are connected with the formation of an autonomous discharge in a solid dielectric (Ref.6), and avalanche (Ref.7) or tunnel (Ref.8) emission under the influence of ion bombardment. A.I. Pyatnitskiy, Ye.A. Krasovskiy, V.G. Butkevich and M.M. Butslov are mentioned for their contributions in this field.

There are 8 figures and 8 references: 5 Soviet and 3 English.
Card 2/3

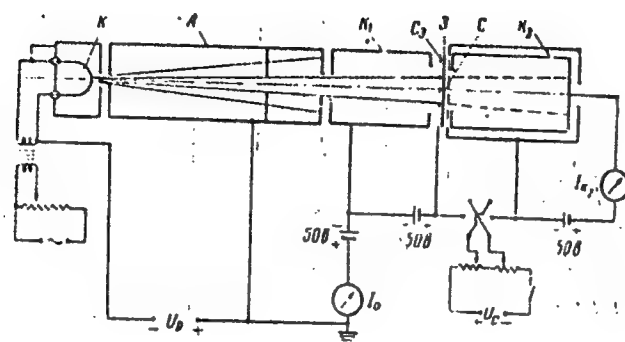
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S/109/61/006/001/017/023

Certain results of the investigation..E140/E163

SUBMITTED: June 15 1960

Fig.1



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AKOPOV, K.A.; KARELINA, N.A.; POKALYAKIN, V.I.; STEPANOV, G.V.

Interagency seminar on cathode electronics. Radiotekh. i
elektron. 6 no.5:863-864 My '61. (MIRA 14:4)
(Electronics—Congresses)

ACCESSION NR: AP4038615

S/0109/64/009/004/0643/0648

AUTHOR: Yasnopol'skiy, N.L.; Karelina, N.A.

TITLE: Effective secondary-electron emitter made of cesium-treated magnesium oxide and operating with shot-through primaries

SOURCE: Radiotekhnika i elektronika, v. 9, 1964, 643-648

TOPIC TAGS: secondary emission, secondary emission layer, cesium vapor treatment, magnesium oxide emitter

ABSTRACT: The response of compacted and uncompact (friable) MgO emitters to treatment in cesium vapor was investigated with the aim of increasing the secondary emission coefficient. The emitters were to operate at low voltage with the primary electrons shot through the emitter. The technology of emitter preparation and the measurement procedure are described by the authors elsewhere (with V. S. Malyshcheva, Radiotekhnika i elektronika, 1961, v. 6, no. 1, 146). The tests resulted in a low-voltage effective emitter made of compacted layers of magnesium oxide treated in cesium vapor (see Fig. 1 of Enclosure). The secondary emission coefficient at 3 kev, for shot-through primaries, is about

Cord 1/4

ACCESSION NR: AP4038615

10, which is nearly double the coefficient of an untreated layer. In the case of uncompact layers, cesium-vapor treatment contributes to the development of secondary emission, which is intensified by the field and can become self-maintaining emission (see Fig. 2 of Enclosure). "The authors are grateful to D.V. Zernov for a discussion of the work, and also to A.P. Ryabova for preparation of the experimental samples and instruments." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 14Feb63

ENCL: 02

SUB CODE: EC

NO REF SOV: 006

OTHER: 004

Card 2/4

ACCESSION NR: AP4038615

ENCLOSURE: 01

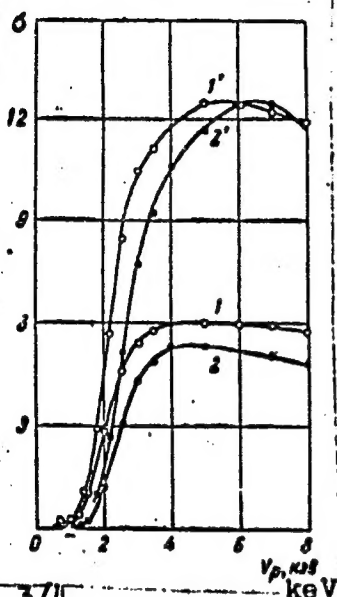


Fig.1. Dependence of secondary emission coefficient on the primary electron energy for compacted emitters before (1, 2) and after (1', 2') treatment with cesium. Curves 1 and 2 correspond to substrate thicknesses of 200 and 400 Angstroms, respectively.

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